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THE SPIRIT

OF



Scientific Progress.

AN ADDRESS

Delivered at the Sixteenth Commencement of the  
Medical College of Indiana,

FEBRUARY 27, 1885,

BY

HARVEY W. WILEY, M. D., PH. D.

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## THE SPIRIT OF SCIENTIFIC PROGRESS.

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This age is probably not much better than those which have preceded it. It certainly is not much worse. We doubtless indulge in a great deal of self-congratulation because we did not live when the Anthropos was yet only the Anthropopithecus, when savage man dwelt in caves, or when all instruments were made of stone.

Conscious as we are of the progress of the world in the arts, we look forward a few million years and see a state of perfection in all the environments of life which bears the same relation to us that we hold to the squalid troglodytes of pre-historic times.

But we are so in love with our own times that we would not be willing to postpone our further existence and have it continued in that age of triumph.

That is a most happy trait of human nature which, amid all seeming dissatisfaction, remains satisfied. The querulous murmurer will constantly complain, but he would not be willing to exchange his identity for that of the gamboling boy. The tramp might gladly take the wealth of the monopolist but he would be slow to take his nature. The old bachelor may envy the good fortune of the smooth-faced Adonis, but he would hesitate before exchanging intellects. In fact, human nature is far better satisfied with the inevitable than the necessity of the case demands, and thinks more of itself than its merits justify.

And this is one reason that science is not popular. Its progress has revealed to humanity that there are still many elements of weakness in man, and shows him that many of his cherished beliefs are illusions.

The house wife is loth to admit that German silver was not invented in Germany, and that it contains no silver. The archeologist is enraged to find Cleopatra's Needle was not

erected by her nor in her honor, and that Pompey's pillar might as well be called the Washington monument. The dainty belle, pressing her signet on the wafer of the letter to her lover, is angry to learn that sealing wax contains no wax. The horticulturist begins to lose faith in nature when he learns that the tube rose is no rose but a polyanth, and that the straw-berry is not a berry. Our friends, the much-abused hydropathists, are furious when they find out that the Turkish bath did not originate in Turkey, and that, moreover, it is not a bath at all. Imagine the disgust of the devoted violinist when he learns that cat-gut is taken from sheep, and of the pampered epicure when he finds out that maple molasses is made from glucose and extract of hickory bark.

There are two traits of human character to which the Spirit of Scientific Progress is directly opposed. These are undue reverence for the established order of things and the fitful desire for that which is new. These two traits appear to be in direct conflict, but they are really allies.

The man who will adhere with the greatest pertinacity to that which is, is generally the one that will pursue with the greatest eagerness that which is to be.

The Athenians were the most intolerant of people in respect of their existing institutions, and the most eager of men for that which was new.

The spirit of scientific progress is both active and passive. Defined in few words it is "the tendency towards truth." In this it is different from every "ology" and "ism" which have had followers among men. These assume certain things to be true, and then promulgate their doctrines in accordance with these preconceived views. Science assumes nothing to be true, but bases her methods on that wisest advice of the bachelor Apostle, "Prove all things; hold fast that which is good." This you see is quite different from the method of the schools which is to prove all things in order to hold fast that which you think is good.

As long as science deals with dirt or writes the record of the

rocks, it excites but little attention among men, and meets with little opposition. But we cannot close our eyes to the fact that the highest aim of science is man himself. Even poets often stumble on the truth as Pope did when he said: "The highest study of mankind is man." We are disposed to forgive him for his awful heresies about government because of his true appreciation of Anthropology.

There is such a thing as human happiness, and science in its last development is that which secures the well-being of the race. Religion, with which science has no quarrel, teaches that happiness is to come in another life even if not in this. Science is not so ambitious, but humbly asks for justice, right and happiness in this world. Therefore, the spirit of scientific progress which has already permeated physics, is now reaching out into metaphysics. The same benign influence that gave to the world Faraday's studies in electricity secured for it Spencer's Data of Ethics. There is no fact so trivial as to escape the notice of this true renaissance—there is no conception so lofty as to be beyond its reach. Before the infinitely small it stands with the same reverent respect that it shows to the infinitely great. We are used to hearing of the triumphs of science. Many of you have heard the steamboat and railroad alluded to in public addresses. The telephone and the telegraph have given Cicero and Demosthenes a chance to rest, for which I have no doubt they are properly grateful. Sophomoric rhetoric and legislative eloquence are not slow to grasp the beauty of the lightning's message and the grandeur of the locomotive's burden. We have been told of the tingling nerves that throb beneath the sea, and of the swift palaces that dart from shore to shore. My Bessemer steel pen, moist with aniline ink, is not equal to these magnificent flights of speech.

But these things are not triumphs of science; they are merely preludes thereto. I do not mean to say that *pure science*, that is the abstract investigation of phenomena, is not of itself noble and useful. Prof. Lodge, in an address at the Montreal meeting of the British Association last summer, said: "Stick to pure



science and its application will take care of itself." And this is true. The relations of phenomena as revealed by pure science, will not long wait for application when such an act will do any thing to increase the material prosperity of the world.

What could seem farther removed from relations to life than those wonderful studies of Crooke's on the phenomena of the fourth state of matter? Yet the idea of molecular bombardment which there found its birth has now been developed into a method of clearing the air of dust and germs by an electrical molecular bombardment. One enthusiast has gone so far as to propose the precipitation of the fogs on the ocean by means of electro-dynamic machines. Within a few years we may expect to see "the perils of the deep" disappear, for a film of oil will secure immunity from the waves and a bristling anode scatter the photophagic fog.

In this respect we must carefully separate the animus of the scientist from the spirit of scientific progress.

The man who gives himself to scientific research may not think of the value of his work to mankind and only of its value to science. It is this devotion which makes research possible without hope of reward or expectation of honor. But every research, however recondite it may be, carried to a successful end, adds something to the sum of human knowledge, and this increases man's power over nature. By the wise use of power happiness is secured. No person is happy who does not become so by doing something.

The humble investigator, therefore, makes the possibility of happiness greater by enlarging the scope of human usefulness. On these sure foundations of abstract research are built the sciences which directly affect life, biology; which relate to the association of men, sociology; which define the principles of government, political economy. Into these larger fields the spirit of scientific progress will lead us and permit us to look at the work which is to be done and to define some of the problems which are to be solved. First of all we are impressed with the feeling that truth alone is the only object of endeavor.

Truth is only the revelation of real relations. It is not so important that we "should see ourselves as others see us," as that others should see us as we are.

Three things stand between the human intellect and truth. First of all ignorance, which is a misfortune rather than a fault; prejudice, which is both a fault and a misfortune, and last of all dogmatism, which is so great a fault that it does not seem a misfortune, and so dire a misfortune that it does not seem a fault. Ignorance may be pardoned, prejudice may be humored, but dogmatism is always detestable.

The spirit of scientific progress seeks to remove ignorance; it strives to overcome prejudice, but it throttles dogmatism. And this, too, in spite of the fact that many scientific men are shining examples of ignorance, prejudice and dogmatism. The assurance with which some men have created worlds and filled them with life is only surpassed by the persistence with which they have held on to their theories.

I doubt whether there is a human being in the world who is without prejudice, that is, who sees things as they are; who is without dogmatism, that is, holding no opinion except what is based on true testimony; as certainly there is not one who is free of ignorance.

There are some men who are so positive earthquakes are the rigors produced by the cooling of the earth that if they should suddenly drop into some seismic chasm and sink into the molten mother liquor of this cosmic crystal and there find some thermic Titan crunching the earth's crust, would swear that he was the incarnate North Pole.

Full of dogmatism myself, warped and twisted by prejudice, I abhor and despise them.

Edwin Booth was certainly guiltless of the murder of Lincoln; there is even no taint of suspicion on him; yet I cannot persuade myself to see him play. It would not be the melancholy Dane that stood before me, but the image of the President, his heart full of praise that the long war was over, and his brain full of thoughts of help to the conquered. I would not

see the king meditating murder, but the stealthy assassin creeping into the box. All the scenery would change into the dingy walls of the old theatre, and the signal to the scene master would sound like the crack of the fatal shot. Against such mental states, however they are produced, the spirit of scientific progress wages constant warfare. It seeks to elevate man to a grander height and a clearer atmosphere. It may not give him new eyes, but it will enlarge his scope of view and cause the horizon of his knowledge to recede.

Let us for a short time look at some of the fields of human thought in which the leaven of the new philosophy is working.

The first symptom of the influence is noticed in the feeling that there is no subject beyond the reach of investigation. The old claim which the weight of authority had on the intellect has largely disappeared. There is no name so venerated that it will be long allowed to conceal error or teach falsehood.

This is strikingly exhibited in the relation of modern thought to the science of political economy. Blindly have men heretofore followed the dicta of Adam Smith, Ricardo, Malthus and Mill. Statesmen consulted these authors, and made their orations conform to the principles laid down in the books. To doubt the doctrine of Malthus was to place one's self outside the pale of economic orthodoxy. Philanthropists looked forward a few decades and saw the world packed as full as Belgium, and men living as meanly as in India. That population tended to increase more rapidly than the means of subsistence was an axiom which to doubt was a self-accusation of idiocy. But science is not so inhuman as the doctrine of Malthus. She shows that the food which sustains life is only a phase in the change of stuff. In the natural order of things the food which is eaten to day is certain to reappear as food in the cycle of nature. Little of this food comes from the soil. It is drawn mainly from the air and water. What little comes from the soil will go back to it again. What comes from the air and water, will be found again in the air and in the water. The possibilities of food making depend more upon



labor than surface of land. They are greater than the probabilities of population. For every mouth that comes into the world there are two hands. The wants of the mouth are fixed, but the capabilities of the hands are enormously increased by the invention of labor-saving machines. One pair of hands to-day can produce a hundred times more food than it could have done in the savage state of man. It is true that in savage life population soon presses against the limits of food and the bitter struggle for subsistence soon brings population to a halt. But in the increasing triumphs of science rendering labor more effective we see no fear of squalor and misery in the future. We see on the contrary the necessity for hard, unceasing labor growing less and less urgent. We see time afforded to the most humble for some amenity of life, for some grace of culture. The repulsive pessimism of the books gives way to the cheerful optimism of science.

If the population of the earth should become a thousand times greater than it is now, the capabilities for food production could not be exhausted. While science cannot create an element of fertility, she can show how every element of fertility can be brought into play and preserved for the highest good. The greater the number to be fed, the greater the supply of material from which food is produced. It has not been a century since Liebig began his labors. Yet as a result of these, every acre of soil in Europe yields now twice the amount of food it did fifty years ago. Still the science of Agricultural chemistry is in its infancy. The power of the land to produce food is increasing far more rapidly than population. The markets of the world to-day are groaning under the burden of farm products thrust upon them. In California fifty million bushels of wheat—bread enough for seventeen million people for a year—are waiting for a purchaser. In Germany a million tons of sugar are asking for a buyer. Australia is burdening the world with mutton and Texas is taxing the markets with beef. Production, therefore, is not the problem which the spirit of progress seeks to solve. It is rather distribution. There is plenty of food in the

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world—no one ought to be hungry, yet thousands are dying with hunger. There is plenty of clothing in the world—no one ought to be cold, yet thousands have shivered and frozen during the winter that is past. That the man who pays his car-fare with a gold dollar, receiving 95 cents in silver change pays 24 cents, while he who drops a nickel into the box pays only a cent and a quarter, is a sad commentary upon our currency but it threatens no danger to the state. But it is otherwise when intelligent men are hungry and capable men can find no work. The future is full of danger unless the bounties of nature shall be free to the competition of every person.

"The laborer is worthy of his hire," is a maxim that ought not to need the sanction of holy writ to convince men of its truth and its justice. The laborer has a natural right to a fair share of the products of his labor. But the soulless tyrant of current political economy denies this. He accords to the laborer only the pittance that an eager competition allows him, that is the least amount that will keep him alive and able to work. Men of money still their consciences at sight of indigent labor because its condition is the legitimate outcome of the books and the teachings of the colleges. It has never occurred to these men of business and men of learning that human brawn should count for something more than the law of supply and demand. You can imbrute men who are ignorant, but our schools are producing a race of men who will not be patient under ceaseless toil, who will not be content with a bit of bread. They will not patiently endure seeing their wives wan with over-work and their children dwarfed for lack of food. Science foresees these imminent dangers and seeks a method of averting them. She is not ready yet to declare her plans, nor carry them into execution. But she is ready to study the conditions of human life and to begin to lay the foundation for human justice. In fact, men have only begun to seriously consider the science of government. One statesman shows that free trade is the basis of all true prosperity, while another proves that industries can only flourish under the aegis of protection. And both appear

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to be right, for in Europe we see the sugar industry driven by protection to the brink of disaster and in this country for the lack of it we find it on the verge of ruin. In free-trade England the Earl of Westminster revels in the possession of fifty million pounds, and in protective America Vanderbilt has accumulated two hundred million dollars. In sight of the custom house which watches over home industries is heard the moan of the wretched mother and the plaint of the starving child. In the great city which is free to the products of the world are half a million of human beings who are kept alive by alms.

The wan faces of children, old from want and yellow from squalor, are turned to you in mute appeal for help in countries where tariffs are high as well as in those where there are none at all. The progress of invention has made a Samson of labor, but let us be sure that it has not "put out his eyes and placed his arms around the pillars of industry."

The progress of Agriculture has filled the granaries of the world with corn, but never has there been so many mouths crying for bread as now. The philosopher explains all this by the dismal dogmas of political economy. The politician seeks to remedy it by tinkering with the tariff. The demagogue professes to solve the problem by destroying the right of property.

Is man merely a machine; or is he also endowed with a nature capable of happiness, sensitive to suffering and hopeful of progress? It seems that all forms of modern philosophy incline to the affirmative of the first question. When they look at the ocean of life they see only the waves of humanity dashing forever on the breakers of subsistence. To them human progress seems impossible beyond these immutable shores. If this be true, then war is always a benefit and pestilence should be as welcome as the flowers of spring. Every advance of the healing art should be considered as a conspiracy of science against the natural order of the universe. The strong man who gives a charity is opposing the laws of existence, and the

tender woman who drops a tear at the couch of sickness is wasting her sympathies on the fates of fate.

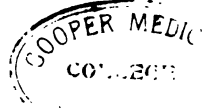
The evolution of man has been accomplished by the struggle for existence. For untold millions of years the individuals of the race suffered and died that an "indefinite, incoherent homogeneity," might become a "definite, coherent heterogeneity."

We now admire the beautiful flower of civilization, but its roots are sunk in a past of pain and its colors are tints of ages of blood. The knowledge which makes life seem to us so rich, the culture which makes it so tolerable, the luxuries which make it so pleasant have all sprung from this eternal struggle and are the fruits of the martyrdom of man.

I believe all this is true. There has been a bitter struggle for existence in which that individual or type which upon the whole has been best adapted to its environment has survived. Population has pressed and still does press on the limits of subsistence. But is this struggle, this suffering to continue? In all the coming æons of time are millions to die that one may live? Is the strong man to beg for bread forever, while elevators are heavy with corn and pens are packed with pigs? Is the crowded tenement house, humid with reeking pestilence and quick with germs of death, to stand always by the palace of the prince?

To such problems as these the spirit of scientific progress addresses itself. What philosophy has failed to remedy, what politics has only made worse, what religion has only palliated, remains for science to do. And this is the great problem of the future, the question of first importance, the only work worthy of the power of man.

In medical studies and sciences allied thereto, it is easy to trace the influence of the spirit of scientific progress. Since the time of Moliere sarcasm has not been silent with reference to medical prejudice, but never has so sharp a pen been dipped in such bitter gall as was that of the great French poet. Sarcasm might indeed do much toward correcting manners but it does not reach the root of evil. The patient who would rather



die under the faculty than to live under other treatment, may still be found. Perhaps that swift and sure doctor Moliere's apothecary describes is still in existence. "Three of my children," said he, "whom he did me the honor to treat, died in less time than four days, who in the hands of another would have languished more than four months."

But the day has passed when physicians as a class excite only the sarcasm or denunciation of thinking men. The spirit of progress has made them more capable and at the same time rendered them more tolerant.

The typical physician will not hesitate to use a good remedy even if it may have originated with a quack. The large minded and large hearted doctor will not refuse to help to save a life with the colaboration of one who may not pursue the same pathy. Or rather I should say, the progress of medicine will make the charlatan and his arts impossible, and the true science of medicine will obliterate every sect. Liberty, equality, fraternity, the motto of the eruptive republic of Europe, is not a bad sentiment for scientific medicine.

It is curious also to notice how often the wildest vagaries lead up to improvement. There is scarcely an "ism" that has ever been proclaimed, however wild in theory and impossible in practice which did not contain a kernel of truth. The apostles of Hydropathy have not preached their exclusive doctrines in vain. The bath, the diet and the air are better to-day in every hospital of the world for the fierce invectives of the water cure and its eager and insistent proclamations of its faith. Typhoid fever has been shorn of many of its terrors by the labors of Priessnitz and Trall.

In like manner has rational medicine profited by the help of Hahnemann. The huge bolus that used to try the capacity of the most capable gullet has given place to the modest capsule that hides even the remaining bitterness of the dose behind a film of gelatine. Medicine has learned that the stomach is not a mortar in which the empirical apothecary may mix vast quantities of drugs. The little is often better than the large.



The patient has cause to be thankful for the change, and even the pharmacist cannot complain, for by that peculiar adjustment of which all things are so capable he has learned to charge as much for the hundredth dilution of the homeopath as he formerly did for the allopath's ponderous pill. But the gain to medicine from the spirit of progress has not been all in the manner of administering remedies. It has been partly in the truer and grander conception of physiology and pathology which has been secured. The heart beat before the time of Harvey, and the brain was the seat of thought before Bain was born. But how differently we look at insanity now from the view that was taken of it a few centuries ago !-

The unfortunate mortal who suffered from any kind of mental aberration was then supposed to be possessed of a devil. And such devils ! When exorcised they took their spite out on pigs, and long before the exploits of Armour taught the peasants of Palestine what it was to be "short on pork."

But, as is always the case in the dawn of a new truth, it has to suffer from an accession of cranks, and so when rational psychology was still an infant we had Spurzheim and Gall. The brain was laid out in town lots, and each phase of thought or feeling was given a "local habitation and a name." Nothing could be more ridiculous than these fallacies of phrenology, and yet the school found many pupils. The craze for "feeling heads" had its run like an epidemic of progressive euchre or roller-skating. Peripatetic philosophers could everywhere be found who, from the contour of your skull, could tell you all the peculiarities of your character, and point out the profession in which your talents would find their most congenial environment and secure the highest reward. For the small sum of one dollar they would furnish you a marked chart of your capabilities and desires. A glance at this would at once enable you to fix your place in intellect and morals and to know whether you were a man of talent or a numbskull ; a saint or a villain. A Journal of Phrenology was also established in which the cranial maps of prominent men could be found with estimates



of their standing; in fact, a sort of cranial civil service examination.

Fowler and Wells were far better known than Emerson and Agassiz. These fallacies could not be laughed down, and it remained for advancing science to show how utterly absurd they were. But in this work science was lead to a much more careful study of brain and mental phenomena than had ever been made before, and hence the vagaries of phrenology are to be thanked for a much more rapid extension of our knowledge of brain and its functions than otherwise would have been secured. And in this study also science discovered the grain of truth that was lost in the chaff of phrenology.

Thus step by step the medical student has been lead up to a rational psychology. That, in so far as this world is concerned, the phenomena of mind are inseparably connected with the brain, is a truth that no man of any scientific attainments will deny. What lies beyond this life, what is the fate of the intellect when the brain is gone, is not a legitimate subject of scientific inquiry. Faith begins where science ends, and this is the reason that with advancing knowledge faith diminishes.

Had it not been for Spurzheim and Gall a Ferrier might not have arisen for centuries. Thus, although cerebral phenomena have been regarded with the most lively interest from the earliest times, it requires some such excitement as this to turn the attention of the investigator to a careful study of them. The localization of the faculty of articulate speech in the third convolution of the left lobe of the cerebrum was the first great truth of this new departure.

The researches of Ferrier gave further experimental evidence that certain cerebral centres held peculiar relations to certain sets of muscular movements. Lately these purely experimental researches have been applied in surgery. A patient presented a series of symptoms which enabled Dr. Hughes Bennett to diagnose a tumor of the brain. These symptoms were of such a nature as to point out the source of the trouble in a definite portion of the cortical substance. The skull was trephined over

the suspected spot and the result of the operation fully confirmed the correctness of the diagnosis. This was a most remarkable fulfilment of the prophecy made by Prof. Ferrier last year in his Marshall Hall oration, in which he said: "There are already signs that we are within measurable distance of the successful treatment by surgery of some of the most distressing and otherwise hopeless forms of inter-cranial disease, which will vie with the most splendid achievements of abdominal surgery." So, too, in that most remarkable book by Benedik, "The Brains of Criminals," are found indications of the beginning of that science which will find in the structure and function of the brain the origin of these emotional and moral differences which are as marked in man as his mental traits. Indeed, for many years the most advanced and thoughtful physiologists have been convinced that moral phenomena as well as mental had a direct relation to cerebral structure. Yet we have only the faintest glimpses of this new field of scientific work.

A few strong lines have been drawn by Benedik in which he shows that the prolongation and confluence of the parieto occipitalis and the sulcus inter-parietalis fissures is a most striking coincidence with the manifestation of the most depraved and criminal traits of character. But association, circumstances and education have so much to do with this that only the most patient and long-continued research will permit the allotment to the brain of its proper influence. In the light of this new dawn all the existing systems of mental and moral philosophy begin to appear in their true grotesqueness of form. It is yet too early to reconstruct them, but it is late enough to begin to discredit them. Like the systems of political economy of which I have already spoken, they have outworn their days of usefulness, and they must give way. Long indeed will they remain to vex us. Like the recrudescant wounds of a dying faith they will not cease to give pain until their last vestiges of vitality are extinct.

Another characteristic feature of the tendency of scientific investigation is the aspect of research to the phenomena of so-called spiritualism and mesmerism. As wild as the vagaries of

phrenology and far more false have been the claims of that peculiar "ism" which both demanded investigation and shielded itself under the cloak of religion. Science has the most profound respect for religion, but none for that form of it which, protected by its feigned sanctity, seeks to decoy and deceive.

Science allows the sacred writer himself to define religion. "True religion and undefiled is to visit the widow and the fatherless in their affliction, and to keep unspotted from the world." With such a life of philanthropy, with such a life of purity, all the noble accomplishments of science are in full accord. Science however does not have much reverence for that kind of religion the chief characteristic of which is a reflex action from the sympathetic ganglia ending in a psychic orgasm which is often mistaken for conversion.

When the world learns that it is as impossible for some men to be honest as it is for others to understand algebra, the treatment of crime may become as rational as the teachings of mathematics.

But as it was in phrenology, so it will be in psychism. The attention which seances draw to the little understood psychic force will attract to the investigation of it competent men, and the kernel of truth in the mountain of rubbish will be discovered. Already there has been formed a society for psychical research, among the members of which may be found some of the most prominent scientists both in this country and England.

That there is a force superior to nature which acts in any way upon anything or person in a manner anomalous or mysterious, is not for a moment to be believed. Admit this but once and all the foundations of human reason are upset, and all the phenomena of nature unreliable. On the other hand, that there is a form of psychic force yet little understood, and which produces strange phenomena, is certainly true. There is nothing supernatural about this force, though it still be strange; there is nothing ghostly about it, though all its causes are not understood.

The brain particles are set vibrating by forces so minute that

they are imponderable to any quantitative measurement. Who, for instance, can measure the magnitude of the impulse produced by a wave of light on the retina? Yet such an impulse can set up a most lively tremor in the cerebral molecules.

It would be dogmatic to say that such impressions can be produced only through the five senses. There may be a sixth sense, with an anatomy and physiology of its own, still more delicate than those whose powers are already known.

There are ears that can hear quicker sound waves than can be detected by the human ear, there are eyes that can see waves of light of shorter length than the last faint lavender of the spectrum visible to the human eye. So there may be a subtle tremor of the cortex of the brain which is responsive to a sense or sub-sense not yet defined. To discover this sequence of phenomena this society has been formed and its members will not rest until the clue to the problem has been discovered, and the false in all these things separated from the true.

If the force of gravity can be momentarily suspended, and chairs, tables and pianos induced to dance a german, the fact will soon be discovered and the conditions on which it depends set forth.

The science of psychiatry has already been profoundly affected by the progress which has been made, and the treatment of the insane is now not so irrational as to convince the unbiased observer that the mental aberration is in the medical staff and not among the patients.

I have spoken particularly of the aspect of scientific progress with reference to political economy and the art of medicine, not because it is different in its relations to these from its relations to every other problem which occupies the activity of human intelligence, but because these problems are most intimately connected with human happiness and progress. Give man health, remove from him the fear of want and you have secured the primary conditions for improvement. In review of the thoughts I have tried to set before you appears first of all the idea that the philosophy of the future is to be permeated with



the leaven of benevolence, will be essentially altruistic; that science is the only phase of modern thought that is not pessimistic in its tendencies. And this does not mean that sickness will be banished and poverty destroyed. The impossible is not to be attempted. It means simply that pain will be lessened and justice secured. The idea of communism is repugnant to science just as the idea of equality is unnatural. It is not a levelling that is expected but an opportunity. He who is endowed with brighter faculties and is most industrious in improving them, will still rise above his fellows in intellectual power. The best business talent, coupled with economy and application, will still tend to make its possessor rich. The sound body joined with respect for the laws of health will remain free of disease. But these are not good reasons why the masses should remain in ignorance or poverty or sickness.

When the weakest of the race has enough to make him comfortable all the rest will have opportunities for improvement. I do not like to be a prophet of evil nor to pose as a querulous critic. But what thoughtful man can close his eyes to the dangers of the future if the present oppression of the poor is to continue? In Russia nihilism appears to be the only possible protest against the autocracy of the Czar. Neither the brief agony of the death penalty nor the life suffering of the silent Siberia can deter the brave agitator from his work. In secret and darkness the printing press prepares its tracts and the propaganda of liberty is proclaimed.

In Germany the protest against the despotism of military rule gives rise to the principles of socialism.

In France the red commune incorporates all the elements of social and political discord, and by its numbers and vindictiveness keeps a whole continent in commotion.

In all these are found real danger to society and the established order of things. In our own country, where the causes of discontent are reduced to a minimum, we are not safe from the strife of strikes and the violence of mobs.

It is humiliating to our pride to look into the future and see

our civilization destroyed and its glories reduced to ruins. Yet the lessons of history teach that some future Gorringe from the shores of the rejuvenated Nile will stand on the banks of the Potomac and superintend the removal of the Washington monument, then reduced to a monolith of marble by the slow cementation of time. Why should a civilization ever reach its maturity and then fall into decay? The spirit of scientific progress declares that it should not, and sets itself seriously about its work for preventing it.

But if all wealth passes into a few hands, and all power follows it, as will certainly be the case; if nine-tenths of the race are to be condemned to continue forever the struggle for existence; if the progress of medicine is only for the benefit of the few, and the cure of the sick is to depend wholly on the financial ability of the patient; if philosophy is to retain the heartless mathematics of fate, and religion to find its highest expression in cushioned pews, then must this civilization, rich and promising as it is, bloom and bear its seed and die. Its beauty will wither as a fading rose, and its victories become the relics of history.

The physicians of the future should be first in the ranks of the new philosophy; if not, they may expect to see their influence wane and the power of the profession pass away. This would be its just fate, and the ruins of medicine would be properly mingled with the fragments of a lost civilization.





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